Table S1. PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Lines 2-4
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Lines 11-32
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Lines 36-114
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Lines 114-117
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Lines 128-142
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Lines 144-156
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Lines 128-151
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Lines 159-165
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Lines 166-180
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Lines 166-180
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Lines 166-180
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Lines 181-188
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Lines 167-180
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Lines 128-142
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Lines 167-180

Section and Topic	Item #	Checklist item	Location where item is reported
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Lines 167-180
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Lines 167-180
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Not applicable
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Not applicable
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Lines 181-188
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Not applicable
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Lines 190-197
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Lines 191-195
Study characteristics	17	Cite each included study and present its characteristics.	Lines 202-291, 303-336
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Lines 342-358
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Not applicable
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Lines 293-302, 337-341
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Not applicable
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Lines 202-291, 303-336
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Not applicable
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Lines 342-368

Section and Topic	Item #	Checklist item	Location where item is reported
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Not applicable
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Lines 369-422
	23b	Discuss any limitations of the evidence included in the review.	Lines 423-441
	23c	Discuss any limitations of the review processes used.	Lines 423-441
	23d	Discuss implications of the results for practice, policy, and future research.	Lines 443-460
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	In progress
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Protocol was not prepared
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	None
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Line 467
Competing interests	26	Declare any competing interests of review authors.	Line 472
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Line 470

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

Table S2: SYRCLE's tool for assessing risk of bias in the in vivo studies.

SYRCLE										
Study	**Selection bias**			**Performance bias**		**Detection bias**		**Attrition bias**	**Reporting bias**	**Other**
	Sequence generation	**Baseline characteristics**	**Allocation concealment**	**Random housing**	**Blinding**	**Random out come assessment**	**Blinding**	**Incomplete outcome data**	**Selective outcome reporting**	**Other sources of bias**
Lan et al. 2021										
Guan et al. 2020										
O-Sullivan et al. 2022										
Zhang et al. 2022										
Collins et al. 2015										
Yan et al. 2021										
Li et al. 2021										
Xu et al. 2022										
Cho et al. 2022										
Guss et al. 2019										

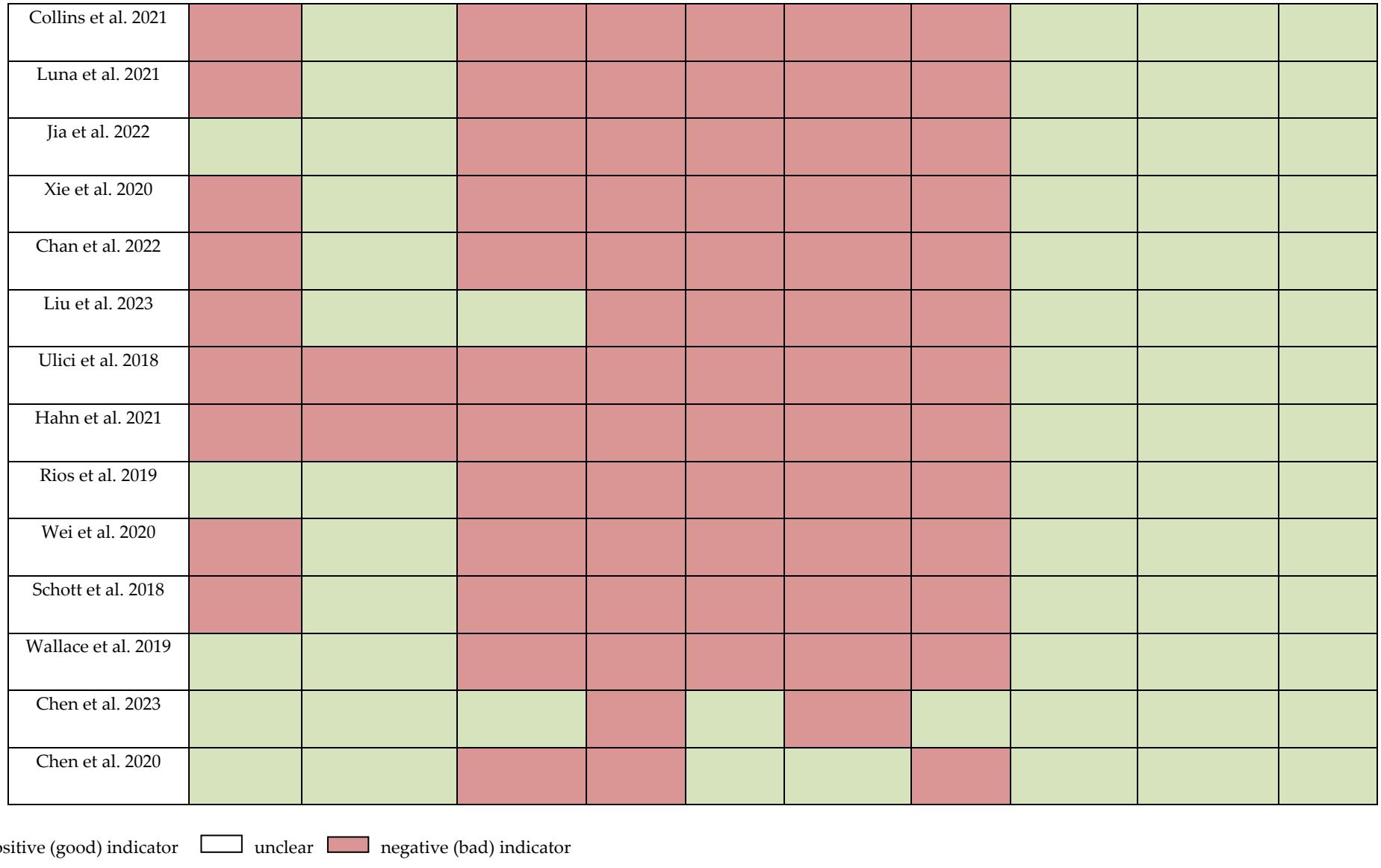

Collins et al. 2021
Luna et al. 2021
Jia et al. 2022
Xie et al. 2020
Chan et al. 2022
Liu et al. 2023
Ulici et al. 2018
Hahn et al. 2021
Rios et al. 2019
Wei et al. 2020
Schott et al. 2018
Wallace et al. 2019
Chen et al. 2023
Chen et al. 2020
positive (good) indicator
unclear
negative (bad) indicator

Table S3: ROBINS-I tool for assessing risk of bias in non-randomized clinical studies.

ROBINS-I								
Study		**Pre-intervention**		**At intervention**	**Post-intervention**			
First author	**Year**	**Bias due to confounding**	**Bias in selection of participants into the study**	**Bias in classification of interventions**	**Bias due to deviations from intended interventions**	**Bias due to missing data**	**Bias in measurement of outcomes**	**Bias in selection of the reported result**
Yu et al.	2021							
Wang et al.	2021							
Boer et al.	2019							
Chen et al.	2023							
Ramasamy et al.	2021							
Guan et al.	2023							
Rushing et al.	2022							
Pedersini et al.	2021							
Chen et al.	2021							
Wang et al.	2021							
Arbeeva et al.	2022							
Lee et al.	2021							
Taye et al.	2020							
Wang et al.	2023							

low moderate serious